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THE GLOBAL SPREAD OF STOCK EXCHANGES, 1980 - 1998*

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THE GLOBAL SPREAD OF STOCK EXCHANGES, 1980—1998

ABSTRACT

Nations opened local stock exchanges at a rapid pace during the late 1980s and 1990s, creating a channel for investment capital from wealthy industrial nations to "emerging markets" as well as a mechanism for institutional change in local economies. This study examines the local and global processes by which exchanges spread, examining all nations "at risk" during the 1980s and 1990s. We find that local factors influencing the creation of stock exchanges included the size of the economy (overall and relative to population size); the legacy of colonialism; and a recent transition to multi-party democracy. Global factors associated with creating exchanges included levels of prior investment by multinationals; IMF "structural adjustment" aid; centrality in trade flows; and regional "contagion." In contrast to prior work in financial economics, we find no evidence for the influence of legal tradition, and contrary to the implications of dependency theory, we find no sign that foreign capital penetration affects the creation of exchanges. We also find no consistent evidence for the influence of stock exchanges on inequality or human development at the national level, above and beyond their effect on economic and population growth. The results indicate that globalization is usefully construed as a process analogous to institutional diffusion at the organization level.

INTRODUCTION

Comparative research on corporate governance during the past decade has highlighted both the cross-national diversity of organizational forms and the idiosyncrasy of the American corporation and its shareholder-oriented system of corporate governance. Where theory in financial economics during the 1970s and 1980s implied that the “separation of corporate ownership and control” lamented by Berle and Means (1932) was both efficient and inevitable (e.g., Fama and Jensen, 1983), research in the 1990s concluded that this separation was nearly unique to the United States (La Porta, et al., 1999). Corporations are fundamentally shaped by their national contexts, from their size and the mix of industries they participate in to issues of financing, ownership and control. To get American-style shareholder capitalism requires an institutional surround implicating corporate and securities law that support “accountability” and protect minority investors; well-structured financial markets; and accounting standards that insure “transparency.” These conditions applied almost exclusively to the United States, with its peculiar history of banking regulation and hypertrophied financial markets (Roe, 1994).

Yet at the same time financial markets began to spread beyond wealthy industrialized nations to low-income emerging markets, bringing with them pressures to conform to the American model of corporate governance (Useem, 1998). Forty-three nations opened indigenous stock exchanges between 1980 and 1998, and portfolio investment in developing economies (that is, net purchases of securities by foreigners, typically American and European financial institutions) increased from zero in 1980 to well over $100 billion in 1993 (World Bank, 1999). Moreover, in contrast to trade flows, financial flows can directly drive changes in organizational structures. Whereas consumers of products may care little about whether their shoes were made in Maine or Malaysia, or whether their auto was produced by a vertically integrated manufacturer or a "network organization," consumers of securities—institutional investors—are quite exacting in their requirements for governance structures. Firms seeking to court investors (foreign or otherwise) are obliged to respond. This is a central dynamic in the process of globalization.

This study seeks to unpack the process of financial globalization by examining the spread of indigenous stock exchanges during the 1980s and 1990s. According to Larry Summers, "Financial markets don't just oil the wheels of economic growth – they *are* the wheels" (*Wall Street Journal*, December 8, 1997). Local stock exchanges are the keystone of the financial market-centered model of national economic growth hinted at by Summers' quote, and opening a stock exchange is perhaps the most visible sign of conformity to this model. A new neoliberal logic of development, sometimes called the "globalization project" (McMichael, 1996), relies heavily on private investment and the allocative power of financial markets. According to supporters of financial globalization, financial markets provide a means to connect foreign savers with investment capital to domestic entrepreneurs with business ideas but little indigenous savings on which to draw. Stock markets are at once a means of channeling capital, a probe for taking the pulse of an economy and assessing its future prospects, a mechanism for effective governance, and a fulcrum for producing institutional and social change within an economy. In principle, dis-intermediated financial systems can have a democratizing influence, as capital flows shift away from the particularistic decision making of banks and state controlled institutions to markets and their universalistic standards of merit (cf. Weber, 1947). Skeptics, however, see the same process as little more than increasing local dependency on decision making in New York and Washington (Gowan, 1999). For either outcome to take effect, however, national economies must first be linked to global financial flows through market institutions.

Figure 1 about here

We argue that the most relevant unit of analysis for unpacking processes of financial globalization is the national system of corporate governance—that is, the set of legal and other institutions at the national level that create the institutional surround for corporations within a nation. Treating the nation as a unit of analysis may is not completely foreign to organization theorists (see, e.g., Kahn and Zald, 1990). Moreover, organization theory has several advantages as a disciplinary home for the study of globalization. The mechanisms for the spread of ideas, practices, and structures among collective actors are essentially similar. Notions of exchange-based power and dependency, of diffusion through networks, of endowment-driven decision making, and others appear in the literatures on both organizations and states (see DiMaggio and Powell, 1991 on the various flavors of "institutional theory" across disciplines). We contrast four theoretical perspectives on global economic development that provide alternative accounts for the diffusion of stock exchanges. The "world economy" perspective focuses on global processes of influence that are tied to exchange between the core and periphery of the world-system. The "world society" perspective focuses on global institutional processes by which templates for economic policy are transmitted. These two perspectives are mirrored at the local (national) level by institutional accounts that emphasize national as opposed to global institutional frameworks and by political-structural accounts that see national policies as manifestations of the power structure of local interests.

The paper is organized as follows: We first describe the distinguishing features of market based financial systems in the context of global economic development. We then contrast the four accounts for the accelerated diffusion of markets since the 1980s, addressing questions of the location of agency, the logic of development, the role of stock exchanges, and the nature of the diffusion process. We conclude each account with a set of predictions that can be used to test the plausibility of the perspective. We present analyses of the diffusion of stock markets to new countries and conclude with a discussion of the implications of our findings for understanding the political economy of economic development and the global financial system.

STOCK MARKETS AND ECONOMIC DEVELOPMENT

Stock exchanges have become an ever more central piece in the architecture of the global economic system, as the size of cross-border financial flows has come to dwarf the volume of international trade and local stock markets have attracted substantial attention from globally-oriented institutional investors. In the late 1990s, the daily volume of foreign exchange trading reached $1.5 trillion, while the daily volume of global exports of goods and services was a “mere” $25 billion (Gilpin and Gilpin, 2000). But this is a quite recent phenomenon. Formal stock exchanges in the post-War era were largely limited to nations with sufficiently large incomes to generate domestic savings. Of the 49 countries with stock exchanges in 1950, 24 were located in Europe, while 13 were current or former British colonies (Goetzmann and Jorion, 1999). Conversely, virtually every non-communist industrialized economy had a local stock exchange. With little indigenous savings on which to draw and limited infrastructure for channeling foreign capital, stock markets played little role in developing economies prior to the 1990s. Rather, capital for economic development came from other sources, according to the dominant theories of development at the time (McMichael, 1996). In the 1950s and 1960s, state-to-state foreign aid was the dominant form of capital flows from advanced industrial nations to developing economies, making up 64% of such flows in 1965 (Armijo, 1999). During the 1970s, long-term lending by banks to governments in developing nations increased dramatically and nearly matched the level of foreign aid. Aggressive lending by banks ended abruptly in 1982, however, when Mexico suspended external debt service and signaled the beginning of a debt crisis across the developing world (Manzocchi, 1999). The rest of the 1980s have been called the "lost decade" in economic development, as private financial flows to developing economies contracted substantially.

In response to the perceived failure of the development project (and, more directly, to the 1980s debt crisis), the *globalization project* (McMichael, 1996) promulgates a market-based strategy of national economic development. Rather than relying on official aid or bank-to-state lending, the new model relied on private investment flows to the private sector in developing economies. The IMF and World Bank facilitated the spread of this model as part of a package of "structural adjustment" reforms during the 1980s, as did Antoine van Agtmael (1984), an economist at the International Finance Corporation who coined the phrase "emerging markets" as an appealing alternative to "third world." Initially portfolio investment flows to low-income countries were rather inconsequential. In the late 1980s, however, portfolio investment in the newly christened "emerging markets" began to flow in earnest, as investors were attracted by the returns available from high-growth economies. By the early 1990s the trickle became a torrent (see Figure 2), as emerging market funds became a staple in the portfolio of institutional investors in advanced economies. The World Bank (1997: 16) reports that "In 1986 there were 19 emerging market country funds and 9 regional or global market funds. By 1995 there were over 500 country funds and nearly 800 regional and global funds. The combined assets of all closed- and open-end emerging market funds increased from $1.9 billion in 1986 to $10.3 billion in 1989 to $132 billion at the middle of 1996."

Figure 2 about here

The new theory of development is reflected in the World Bank's World Development Report for 2000. The theory, in brief, is that the creation of "well-regulated" financial markets open to foreign investors provides the surest path to rapid economic development. At the receiving end, businesses in low-income countries gain direct access to the enormous stocks of private capital generated in industrialized countries. Rather than having to rely on aid and loans mediated by political organizations, they receive capital directly from private investors. Bypassing potentially inefficient or corrupt government structures frees local entrepreneurial potential and accelerates economic growth. This encourages policy makers and corporate managers to make future-oriented decisions about the governance of their economic system. It also offers a unique opportunity for capital-deprived developing countries that can convince investors about the future prospect of their economy. Rather than wait for domestic capital to form in a slow process, they can borrow from foreign savers to speed development and join the global economy much more quickly. Moreover, stock markets generate a wealth of valuable intelligence through the operation of the price system, which can help guide the decisions of both managers and investors. The benefits to investors are rooted in prospective growth rates unattainable in advanced economies, and the high returns to match the risks involved.

The "financial market theory of development" has found some support in several academic studies (for a concise review of the evidence, see the World Bank's World

Development Report 2000, chapter 3). Filer, Hanousek, and Campos (1999), for instance, report that stock market activity enhances economic growth in low and middle income countries, consistent with a number of studies by Ross Levine and his co-authors on the beneficial effects of financial development (e.g., Levine, 1998). But Filer et al. caution that these effects hold in developing economies *only* when a "proper institutional framework" is in place—in nations with rampant government corruption, for instance, active stock markets actually appear to *inhibit* growth. More generally, many economists are highly skeptical of cross-national statistical models of economic growth due to essentially insoluble problems of model specification. Independent of the empirical support (or lack of it), the theory has an impressive installed base of subscribers in the US Treasury, IMF, and World Bank, which may account for its apparent spread during the past decade (cf. Figure 1).

If stock markets are perceived to be so manifestly beneficial for economic growth, the appropriate question is perhaps not "Why have they spread so quickly in the recent past?" but "Why do only half the world's economies have them?" According to Douglass North (1990: 6), "The central puzzle of human history is to account for the widely divergent paths of historical change. How have societies diverged? What accounts for their widely disparate performance characteristics?" If there is a superior path to economic growth, why don't all nations follow it and thus converge in their economic structure? North's answer turns on the dynamics of institutions—the "humanly devised constraints that shape human interaction" (3). Financial markets are connected to the real economy through a set of corporate governance mechanisms, an "institutional matrix" linking the prices generated by markets to business decision making on the ground (see Davis and Useem, 2000, for a review). At the same time, markets need enabling institutions that allow them to function. The financial market theory of development implies that stock markets will enhance economic growth when they are embedded in an institutional matrix that ensures that their signals guide decision-makers toward growth opportunities. Elements in this matrix can range from the micro (e.g., compensation systems tied to share price) to the macro (e.g., the system of commercial law). Nations vary in the extent to which they provide a hospitable climate for financial markets. Thus, the critical question for understanding the *uneven* spread of stock exchanges is “What are the national-level institutional pre-conditions that facilitate or inhibit the creation of stock exchanges?”

We view the spread of stock exchanges as an instance of the diffusion of an institutional innovation. Our interest is not in the original innovator(s) and how stock exchanges came to work the way they do, but instead in the variation with which others adopt that innovation. The diffusion framework allows us to examine why more stock markets were created *and* how and why variation in adoption persisted. The relevant “adopter” is the nation. This is not to say that every exchange is created by states—roughly half are created by private interests (although not, of course, without state approval and legal backing)—but rather that “having a stock exchange” is an attribute of a national economic system. We now turn to four theoretical accounts that may explain the accelerated diffusion of stock exchanges to new countries since the 1980s. Although we frame them as competing, they do not make contradictory predictions; rather, they point to different processes and relevant actors at the intra- and inter-national level to account for diffusion.

DEPENDENCY AND THE MAINTENANCE OF CORE/PERIPHERY RELATIONS

Not unlike standard economic theories, the dependency (or world economy) perspective looks at the international economic system in terms of a global division of labor. However, unlike economic theories, world systems researchers maintain that this division of labor is driven by competitive power relations between nation states, resulting in a hierarchical organization of core and periphery (Wallerstein, 1974, 1980, 1989; Bornschier and Chase-Dunn, 1985; Chase-Dunn, 1989). The concentration of political and economic resources allows members of the core (primarily the industrialized West) to dominate peripheral actors through politically regulated, fundamentally unequal economic exchange. While core-periphery exchanges are always unbalanced, the mix of political and economic means of domination may vary (Strang, 1990). In periods of relative equality among core actors, domination of peripheral territories becomes a political resource for competition at the core. Each core actor seeks to expand its political power by directly dominating parts of the periphery, e.g. by forming colonies. Conversely, when a single hegemonic actor dominates, core actors resort to economic expansion through trade with peripheral areas (Wallerstein, 1974, 1980, 1989). At least since World War II, the US is commonly assumed to be the hegemonic power for the capitalist part of the world system, and trade and capital liberalization have progressed accordingly (Chase-Dunn, Kawano, and Brewer, 2000).

In this perspective, the path of global development is dictated by core nations' interests, particularly by the US as the hegemonic power. International organizations such as the World Bank and the International Monetary Fund are instruments of the core that help maintain rather than eliminate the hierarchical nature of the system (Gowan, 1999: 29). Historically, trade liberalization and development programs were aimed at securing political control over peripheral nations that were seen as vulnerable to political influence from the Soviet Union during the cold war. The economic stagnation of capitalist nations in the aftermath of the oil crisis also intensified efforts to extract profits in peripheral nations, initially by means of trade and foreign direct investment. Finally, the end of the cold war reduced direct political conflict and hence increased economic competition between core nations, reinforcing their interest in access to peripheral countries' resources.

In this context, why should a particular economic institution, stock markets, have become of heightened interest to the economic core of the world system? Two factors may offer an explanation: The first is linked to frustrations with direct investment as a means to acquire local assets. Entering, controlling and exiting these investments often requires in depth local knowledge and the maintenance of relationships to local power holders (see e.g., Shell's troubled involvement in Nigeria). The second, perhaps more important factor, is the rise of institutional investors as a set of powerful actors in core nations, and particularly in the US (Useem, 1996). Unlike multinationals, institutional investors need stock markets to access assets in peripheral countries and extract profits. They lack the interest and the skill to directly control investments and rely instead on the corporate governance role of functioning financial markets.

Stock exchanges then serve three purposes in this view, all related to reproducing the core/periphery hierarchy. First, they facilitate access to and control of existing local assets for money investors located in core states. This is because stocks can be bought and sold in a relatively swift and inexpensive manner without the need to rely on local intermediaries or expensive greenfield projects. Second, stock markets reduce the influence of local political elites on foreign investments. This applies to the choice of investments, the degree of control and the ease of exit. Third, stock markets act as institutional safeguards for appropriate governance of investments once they have been made. This is particularly relevant for foreign investors that are unfamiliar with local conditions and may only want to hold minority positions in the companies.

Stock market based ownership induces managerial discipline through competition for corporate control and the availability of powerful incentive schemes (Fama and Jensen, 1983).

If the creation of financial markets is in the interest of actors at the core of the system, the uneven adoption by more peripheral nations can only be due to variations in the structural linkages to the core and the relative power of the non-core nation. The master hypothesis of the dependency view is thus that the creation of stock exchanges will be more likely to the extent that a potential adopter is dependent on the core and thereby susceptible to its influence. In this perspective, influence is tied to existing economic exchange—trade and capital flows. The balance of power hinges on the relative magnitude and criticality of that exchange to either partner (a familiar idea from resource dependence theory, see Pfeffer and Salancik, 1978). In terms of trade, exports to core nations are particularly important to many developing nations, as they generate “hard currency” needed for other trade. Therefore, countries that are more dependent on exports to key core actors should be prime targets of pressures for capital market liberalization and the establishment of stock exchanges:

H1: The volume of exports to the US relative to other exports will increase a nation’s rate of stock exchange creation.

Dependence on foreign capital, or capital dependency (Bornschier and Chase-Dunn, 1985), is the equivalent to trade on the financial side. Capital dependency is typically operationalized by a measure known as “foreign capital penetration” (or PEN), which is the size of the economy’s capital stock that is controlled by foreign multinationals (generally headquartered in core nations). Capital dependency theory produced a stream of empirical research in the 1980s and 1990s and generated some alarming conclusions about the effect of foreign capital on the recipient country (see Firebaugh, 1992 for a review and methodological critique). Researchers argued that foreign investment produces less growth than domestic capital (Bornschier and Chase-Dunn, 1985:133-147; Dixon and Boswell, 1996) and leads to several negative social outcomes: high mortality levels, increased political violence, reduced levels of basic needs provision, and general “immiseration” in the receiving nations (Firebaugh, 1992:107-108). While evidence for negative *effects* of capital dependency is still debated (see e.g. Kentor, 1998, and de Soysa and Oneal, 1999 for recent conflicting interpretations), we use foreign capital penetration merely as a measure of structural influence by core nations. The degree of capital dependency increases the presumed policy influence of core nations over dependent economies, as local assets are controlled by actors situated in core nations.

H2: Foreign capital penetration will increase a nation’s rate of stock exchange creation.

A less frequently mentioned but perhaps even more effective channel of influence is financial aid and credits disbursed and administered by international development agencies, such as the World Bank (WB) and the International Monetary Fund (IMF). The World Bank and the IMF provide economic policy advice and assistance to low income nations. From a dependency perspective, they do so as instruments of core states who define the agencies’ goals and policies and supply the resources necessary for their operation (Gowan, 1999). They have at their disposal various means of influencing national governments, primarily the control over financial program assistance and credit (McMichael, 1996; International Monetary Fund, 1997). Dependency on development aid administered by those organizations should therefore increase a country’s susceptibility to influence by core nations and lead to the establishment of stock markets in line with core nations’ policies. A particularly potent form of aid is the IMF’s Enhanced Structural Adjustment Facility (ESAF), which ties credit at a concessional rate to macro-economic actions by the recipient government (although not directly to the creation of specific institutions such as stock exchanges). In the wake of the 1980s debt crisis, several dozen nations received aid under the ESAF and altered economic policies accordingly (International Monetary Fund, 1997), lending prima facie support for using flows of financial aid to represent structural channels for influence.

H3: Receiving concessional aid from the IMF will increase a nation's rate of stock exchange creation.

WORLD SOCIETY AND INSTITUTIONAL CONTAGION

A different explanation for the creation of new institutions in states comes from the world society (or neo-instititutionalist) perspective. Meyer et al. (1997: 144-5) begin a recent statement of this approach with the statement that "Many features of the contemporary nation-state derive from worldwide models constructed and propagated through global cultural and associational processes" rather than from obvious needs on the part of the nation. Just as organizations may adopt practices and structures for legitimacy purposes rather than out of technical requirements (Meyer and Rowan, 1977), so developing nations adopt structures and practices (governmental agencies, institutions for education, medicine, and science, a regular census, and so on) for reasons of legitimacy. Notably, it is factors such as proximity to institutional models and membership in the "society of nations" that drive the creation of such institutions rather than institutional fit (as in the contractarian and comparative cultural approaches), national politics (as in the national elite view) or power/dependency relations (as in the dependency model). Changes in the institutional structures of nation states are propagated through a set of network and other diffusion processes (Meyer and Rowan, 1977) or simply by virtue of their taken-for-granted nature as attributes of actorhood (Meyer, et al., 1997).

A nexus of social actors on the world stage define norms for national institutional design and set the direction of development policies. On the one hand, high-status, wealthy nations shape the discourse and serve as templates for how nations should be designed and governed. They are supported and influenced by an organizational infrastructure of international governmental and non-governmental organizations that act as agencies for the articulation and promotion of models of development (McMichael, 1996; Boli and Thomas, 1999). How these decision makers define interests and formulate policies can be a function of the manner in which issues are represented by specialists to whom they turn for advice in the face of uncertainty. Scientists, consultants and other development experts form "epistemic communities" (Haas, 1992) that play a prominent role in framing the debate and rationalizing particular institutional solutions to general issues of global development. Note that these experts often receive their training in the same high-status countries. The set of actors described here is then not unlike an organizational field (DiMaggio and Powell, 1983) that has emerged since World War II around the issues of globalization and economic development. Economic policy makers in developing countries are peripheral participants in this world community. Faced with the society of nations as arbiters of their conduct, they manage their legitimacy as competent economic governors by implementing the institutional structures prescribed by the discourse of global opinion leaders. They manage legitimacy strategically, to pacify important constituents and to keep up with social referents, or they have accepted and internalized the dominant model as the factual reality of economic development.

The post-war period saw the rapid and sweeping diffusion of the modern nation state model to former colonies (see Figure 1). Elements of this model, such as basic civil rights and norms of political participation, served to legitimate demands for statehood in the dependent as well as the metropolitan territories (Strang, 1990). With the nation state thus firmly established as the sole form of political organization, two developments reduced the number of viable models of *economic* governance. The first was the virtual collapse of the Soviet system of production in the 1980s and the resulting de-institutionalization of this economic system. The second was a turn in the economic discourse within the capitalist world during the same time. A neoliberal institutional framework, emerging from the 1980s US and UK economies, started to dominate the discourse in the 1980s and 1990s, marginalizing more corporatist Japanese and European models as viable templates for economic vibrancy. This Anglo-Saxon model reserves a reduced role for the state in economic affairs (monetarism), and relies instead on private ownership, market liberalization, transparency and a financial view of the corporation as means to achieve social welfare and economic efficiency. Visible signs for the influence of this model are, for example, the conversion of several central banks to monetarist policies (e.g. the US Fed in 1979) and the free-market agendas pursued by the Reagan and Thatcher governments in their respective countries. Stock markets are a central institutional element in this system of "investor capitalism" (Useem, 1996). It is no coincidence that the US financial system, the prototype of this model, is often described as *stock-market centered*.

Establishing a national stock exchange then serves important symbolic functions for countries that did not already have one in the early 1980s, independent of the institution's technical merits and the country's economic needs. The stock exchange of Swaziland, for instance, had an average daily trading volume of $822 in 1990 (International Financial Publications, 1998), which suggests that the market is unlikely to provide either a powerful engine of economic development or a tool for maintaining economic subservience. As a highly visible and salient feature of the dominant model of economic organization, establishing stock markets signals the pursuit of legitimate, “modern” economic policies. For low income countries and those joining the capitalist world, instituting a stock exchange is an act of association with the circle of successful industrialized nations and serves as a source of prestige in comparison to countries of similar development.

Two processes are consistent with the institutional account. The first is based on the taken-for-grantedness of stock markets as institutions. Financial markets are part and parcel of the “institutional package” that comes with modern capitalist statehood, similar to democratic elections and bureaucratic government structures as suggested by Meyer, et al. (1997). Akin to environmental imprinting by available social technology in organization theory (Stinchcombe, 1965), this argument is particularly relevant to those capitalist states formed since market-based financial systems became the dominant model in the 1980s. Designing new institutional structures arguably requires less time than unfreezing and changing established ones. We would therefore expect newly independent states and countries transitioning to capitalism to create stock exchanges almost from inception as part of the standard package of capitalist statehood.

H4: Independence as a state after 1980 will increase a nation’s rate of stock exchange creation.

The second process by which institutional models spread is through contagion between existing nations (Strang and Soule, 1998). Here, nations establish stock markets based on social information and status seeking processes. Proximity to prior adopters is important in both cases. At the most basic level, proximity correlates with the volume of information that flows. Moreover, proximate others provide the most observable, most salient and most trusted source of information (Granovetter, 1985). As a result, behaviors and mental models are likely to diffuse locally through inter-nation networks.

The relevant measure of proximity is of course context specific. The most straightforward measure for closeness between two countries is their geographic proximity, either through sharing a border or being located in the same region. We would expect that the adoption of stock exchanges by geographically proximate states will increase the likelihood of adoption for the focal country.

H5: Creation of stock exchanges by geographically proximate nations will increase a nation's rate of stock market creation.

However, spatial distance is not necessarily the most relevant measure of closeness. Neighboring countries engaged in wars or be separated by geophysical and historical divisions may not perceive each other as referents relevant to the design of economic institutions. A more relevant measure for ties between countries may be bilateral flows of trade, as trade results in exposure to another country's economic system. In contrast to exports to core nations in the dependency perspective, trade here serves as a proxy for general information flows. Consequently, we are not concerned with the criticality of material flows with a specific other nation and treat all trading partners above a certain threshold of trade as equally influential. We would then expect the adoption of stock markets by the country's main trading partners to increase the likelihood of establishing an indigenous exchange.

H6: Creation of stock exchanges by significant economic trading partners will increase a nation's rate of stock exchange creation.

NATIONAL INSTITUTIONS AND ECONOMIC DEVELOPMENT

In contrast to the global perspective represented by world economy and world society perspectives, scholars in the comparative research tradition emphasize the importance of local (here: national) institutions for development. They explain variation in countries' propensity to create a particular institution not by the focal nation's connection to influential others, but by factors endogenous to that nation, in particular the need to align a broader set of institutions in an institutional matrix (North, 1990).

This perspective has currency across academic disciplines. In a recent statement, Biggart and Guillén (1999: 725) point out what they see as "a limitation to much of the development scholarship of recent decades: *the search for a unified theory of development* applicable to *all* countries" (emphasis in original). Historically developed national social structure, culture, and institutions guide the path of development, enabling some but constraining other directions. This is because "the internal coherence of such organizing logics limits countries' abilities to copy each others development strategies, at least at the level of organization." (Biggart and Guillén, 1999: 742), and because policy makers routinely reproduce traditional strategies when faced with new challenges (Dobbin, 1994).

Parallel to this theorizing about why national differences persist, institutional economists and agency theorists have performed comparative analyses of a narrower set of institutions in the context of stock markets (e.g., La Porta and Lopez-de-Silanes, 1998; La Porta, et al., 1998). The underlying question behind this research is "What factors distinguish economies with thriving capital markets from those with weak capital markets?" Put another way, why do some economies use substantial arms-length investment (as indicated by large stock market capitalization), while in other economies corporate finance is channeled primarily by banks or other "embedded" sources? The answer turns again on the idea of institutional alignment— the origin of a country's legal system determines the "optimal" organization of financial markets, via the degree of shareholder protection encoded in domestic law. Stock markets embedded in matching institutions can create a virtuous cycle of economic growth (see Davis and Useem, 2000, for a critique). But given the wrong institutional infrastructure, “marketization” can be an economic disaster (see Spicer and Kogut, 1999).

Agency for development is located with national actors, in particular the state in its capacity as legislator and law enforcer (Campbell and Lindberg, 1990; La Porta, et al., 1998) and effective administrator (Evans and Rauch, 1999; La Porta, et al., 1999). In addition, idiosyncratic forms of social organization, values, and traditions guide the efforts of *all* economic actors within a nation in the same direction. These national actors are not necessarily unaware of new challenges and alternative development policies. However, their preferences and their repertoire of responses to these new challenges are shaped by their prior endowment of institutions and traditions (Dobbin, 1994). To the extent that nations behave similarly, they do so because of a common past.

Countries develop by adapting institutional configurations to new global and local challenges. Local conditions and path dependent evolution lead to highly idiosyncratic solutions to these new challenges. Sociological and economic accounts diverge in their judgment whether this uniqueness can be a source of national “comparative advantage” for any country (Biggart and Guillén, 1999) or whether some institutional settings are simply better (La Porta and Lopez-de-Silanes, 1998). However, both perspectives emphasize the importance of initial conditions, at the time of formation as a nation state or at the time of critical transformations in the history of the country, and the subsequent path dependence of institutional development. The role of stock markets is then as an institution that complements preexisting structures and fits in with more general economic orientations.

According to a recent review, "The most basic prediction of the legal approach is that investor protection encourages the development of financial markets" (La Porta, et al., 2000), and the single biggest factor determining the quality of investor protection is the origin of the legal system. Countries whose commercial law derived from a common law tradition, which includes most English-speaking countries as well as former British colonies, have stronger shareholder protections than countries with civil or "code" law, and thus have larger stock markets and more dispersed corporate ownership (La Porta, et al., 1998). The rationale is straightforward: outside investors are wary of portfolio investment in firms where control by managers or large shareholders is not constrained by legal protections for minority shareholders. In nations with weak shareholder protections due to their legal traditions, investors find minority investments unappealing, and thus firms find raising capital on markets more costly than alternatives (e.g., large banks or private owners).

Although La Porta et al. refer to the viability of existing markets in their series of studies, their argument can logically be extended to the creation of new markets. If the degree of investor protection embedded in commercial law can be traced back to variations the origin of a country's legal system, then the different legal systems themselves vary in their orientation to arms-length investments. In other words, legal shareholder protection is the *expression* of a more deeply embedded legal orientation towards investor rights. By the logic of institutional alignment, other investor-friendly institutions, such as stock markets should be more likely to be created in such a legal climate. Conversely, less investor-oriented systems may have created functional alternatives, e.g. large banks and private ownership, which in turn reduce the need for stock markets in those legal systems. Overall, we can therefore anticipate that if common law nations support thriving stock markets, they will also be more likely than others to create stock exchanges in the first place.

H7: Having a common law tradition will increase a nation's rate of stock exchange creation.

A second major factor is the country's principal religion (La Porta, et al., 1999). The link between economic organization and religion of course goes back to Weber (1904/1958), who argued that particular strains of Protestantism facilitated the development of capitalism in the West following the Reformation. The link between Protestantism and commerce is undoubtedly subtle. Yet, prior research has found a significant relation between the prevalence of Protestantism, trust, and the viability of capital markets within nations—arguably because the relatively less hierarchical nature of Protestant tradition facilitates horizontal ties useful for market transactions (La Porta, et al., 1999). By analog reasoning to the previous hypothesis, the argument about market viability can be extended to the creation of new markets.

H8: A predominantly Protestant population will increase a nation's rate of stock exchange creation.

It is important to bear in mind, however, that both legal system and religion in many developing countries are in part a legacy of the colonial power that ruled and often developed the administrative foundations of the subsequent nation states. While La Porta, et al. (1999) argue for more "direct" operationalizations, such as legal system and protestant faith, the counter argument is that both are merely traces of more comprehensive colonial influence that reflect institutional differences in the metropolitan countries. This influence includes many more elements, such as training of local elites in metropolitan countries, distinct approaches to colonization and de-colonization, and creating initial administrative structures and traditions that serve as templates for subsequent national economic development. Given the rather different economic policy orientations of Britain and France even in the colonial area (Dobbin, 1994), we would expect former British colonies to be more prone to create stock market based economic systems, while former French colonies should be less likely to do so. Note that the argument here is separate from the discussion of legal systems in La Porta, et al. (1999): it is not laws, but a more general orientation towards markets and private investment that makes the creation of a stock market a likely response to any new challenges to the country's economy.

H9: A history of British colonization will increase a nation's rate of stock exchange creation, while a history of French colonization will decrease the rate.

NATIONAL ELITES AND POLITICAL INTERESTS

While the local institutional view does not ignore political processes in the construction of institutions, it treats institutional orders as taking on a life of their own, shaped by an endowment dating from times of significant political upheaval (e.g., colonization, decolonization) and driving towards alignment. An alternative view focuses on the dynamics of political struggles per se, where institutions are held in place by current constellations of interests and where conflict is omnipresent. To some degree, the existing economic system serves the most powerful groups or coalitions, national elites in whose hands economic and political resources are concentrated (Marx, 1872/1974). Yet, the way a national economy is organized is constantly contested. Changes in economic governance are linked to shifts in power between groups of actors. Established national elites benefiting from the current arrangements have an interest in maintaining the status quo and consequently resist changes that may threaten their position, while times of political transition create opportunities for widespread institutional innovation and change (Stinchcombe, 1965).

The relevant actors at the national level are those interest groups that have vested interests in economic policy and the design of the financial system. These include business elites (Mintz and Schwartz, 1985), the holders of private wealth (Morck, Strangeland, and Yeung, 1998), and the state and the current political rulers (Tilly, 1990; Olsen, 1993). As in the local institutional perspective, these actors are not necessarily ignorant of the global context within which they operate. However, they use their agency to pursue self-interested goals and their interests are vested in national, not global, structures and are played out within the national arena.

The trajectory of national economic development is then a function of the struggle between competing interest groups over time. Periods of balance of power may alternate with times of dominance by particular groups, but when dominant coalitions do change, economic policies change, too. These changes can occur within an existing regime, e.g. in the case of a change in government after a democratic election or the replacement of one military leader by another. To the extent that groups and parties represent different interest groups and ideologies, the institutions used to govern the economy may be affected by such shifts. For example, one government nationalizes important industries and pursues a “statist” development policy while another privatizes them when it comes to power, to take a “neoliberal” development path. The role of a stock exchange in this perspective is to further the interests of a particular coalition.

More profound changes occur when the regime itself changes and the structure of access to political power is altered, e.g. in a coup d’etat or the transition from dictatorship to a free electoral system. Which regime is better for the development of the country at a particular point is subject to debate. What is important for this study is that institutions are particularly likely to change with major shifts in national power structures, as different forms of economic governance serve the interest of different regimes or the part of the population supporting these regimes. At least in theory, financial markets are less amenable to direct influence by central political authorities, provide equal access to exchange opportunities, and promote transparency and public accountability of economic activity. Rulers whose ideology is founded on socialist, religious or authoritarian ideas, or who represent the particular interests of socio-economic elites, should be suspicious of uncontrolled flows of capital in private hands and use their power to create governance structures of different types. Conversely, the public availability of information and the potential dispersion of economic participation should support democratic regimes that may be threatened by a concentration of economic power and information. A transition to democracy should facilitate the creation of exchanges.

H10: Transition to democracy will increase a nation's rate of stock exchange creation.

METHOD

This study looks at the diffusion of stock exchanges to countries that did not have one in 1980. We conceive of the process as the diffusion of an institutional innovation. Our unit of analysis is therefore the nation, and our dependent variable is the time of establishment of the first stock exchange within the nation's borders. We ignore the subsequent creation of additional exchanges as well as the existence of commodity exchanges.[1] If an exchange existed on a country's territory prior to independence, the original founding date of this exchange is used if it continued to exist after independence. The date of establishment of an exchange is the formal incorporation date as

[1] In almost every case, the first stock exchange is the only one ever opened during this period. The most notable exceptions are the Ukraine (with five exchanges, one of which accounts for 95% of turnover) and Russia, with 60 registered stock exchanges.

reported in handbooks published by Park and van Agtmael, 1993; the International Finance Corporation, 1995-1998; and International Financial Publications, 1998.

We construe the opening of a local stock exchange as a meaningful change in the institutional constitution of a national economy, and one that is comparable across nations. There is reason to be skeptical of this claim for comparability. Nations vary in who was the primary force behind creating an exchange: roughly half were created by private interests (e.g., business owners or bankers banding together to find a means of attracting capital), while half were created directly by states (in the case of Oman, the market was created by royal decree). Some exchanges have remained miniscule relative to the size of the economy (the market capitalization of all of Kazakhstan's public companies was roughly 0.2% of GDP in 1998) while others became quite significant (the equivalent figure for Trinidad and Tobago was 61.5%--see World Bank 1999: Table 5.2), and the number of traded companies ranged from 2 to over 900 (in China). There was also significant variation in market microstructure, that is, the specific details of how stocks are traded on the market, from open outcry auctions (like the New York Stock Exchange) to electronic quote-driven markets (see World Bank 1997: Annex 6.2 for a discussion of different microstructures). And there was some small variation in the extent to which other forms of financial exchange had existed before: four nations in the risk set (China, Hungary, Romania, and Russia) created commodity exchanges prior to their stock exchanges (although in three instances the commodity exchange preceded the stock exchange by less than a year).

Yet we consider the opening of a first stock exchange to be a singular and significant event in the process of globalization, and thus worth examining. Economic globalization can be understood in two ways: as the spread of economic institutions among nations, and as the increasing interpenetration of economic exchanges among nations. Opening a local exchange is a necessary (but not sufficient) condition for the spread of stock market-centered institutions of corporate governance (also known as “shareholder capitalism”) and for the integration of a national economy with the global financial market. The extent to which an exchange, once opened, becomes economically significant has received expansive attention in recent years (see LaPorta et al., 2000 for a review), and the role of existing exchanges in ushering in American-style shareholder capitalism is still the object of vigorous debate. We ask a different question: when and why do nations take the first step by creating the keystone institution, a stock exchange? Moreover, financial integration is perhaps the signal element of a more general process of globalization: “financial markets have been transformed over a span of two decades from relatively insulated and regulated national markets toward a more globally integrated market” due to technological advances, de-regulation, and the increased interest in international investment of rich-country institutional investors (World Bank 1997: 14). By opening a local stock exchange, nations may join this process. For these reasons, we argue that opening an initial exchange during the 1980s and 1990s is in itself a significant and singular event.

Sample and time frame. The “at risk” population is any nation that existed in 1980 or subsequently and did not have a stock exchange as of 1980. The list of countries was compiled from the United Nations directory of nations and the CIA’s World Factbook. In 1980, 59 countries had established one or more exchanges, which excludes these countries from the risk set. Additional countries enter the risk set when they become formally independent and exit the risk set when they are dissolved or create an exchange. Excluding exchanges created prior to 1980 raises issues of left-censoring. (Indeed, the first stock exchange opened in Antwerp in 1531!) We believe, however, that opening our study period in 1980 is justified, for theoretical and empirical reasons. First, as Zaheer, Albert, and Zaheer (1999) point out, the time scale during which the phenomenon of interest exists and the time scale to which the theory applies may not coincide and this difference affects the proper design of a study. While we do believe that the theoretical *processes* and mechanisms underlying the world economy and world society perspectives are broadly generalizable, we do not suspect that they worked in the same *direction* prior to 1980. The phenomenon of interest to which our directional hypotheses refer is the proliferation of stock markets during a specific economic and political constellation, not their emergence over the last 200 years. The regime shift in leading capitalist nations in the early 1980s, indicated by an increased emphasis on the governance functions of financial markets, rising portfolio flows (see figure 2), and changes in the IMF's policy (the first loans formally under the ESAF were disbursed in 1986), suggests that stock markets did not always play the role for economic decision-makers that they have come to occupy since. Second, from an empirical perspective, the 1980s and 1990s capture most of the adoption events (see figure 1). Only 14 exchanges were created in the 20 years from 1960 to 1980, compared to 18 from 1981 to 1990 and 24 from 1991 to 1997. At the same time, starting in 1980 early enough to capture the beginning stages of the process of interest. Finally, the availability and reliability of socio-economic data deteriorates quickly for earlier years, reducing the effective number of observations for earlier periods. In light of our theoretical focus, we decided to trade off a longer time period for more complete coverage of the core period of interest.

Model. Event history analysis is ideally suited to the study of diffusion processes, and thus we use a Cox proportional hazards technique to model nations' "transition rates," that is, the rates at which they move from non-adopter to adopter. Time to adoption is measured from January 1, 1980 (the beginning of our sample period) or from the point at which a nation first became independent, if this was after 1980. Covariates were updated annually where appropriate and lagged. Thus, at a given time, a nation's risk of adoption is modeled as a function of its exports to the US in the previous year, aid from the IMF in the previous year, number of stock exchanges created by other nations in its region in the previous three years, and so on. This approach is especially appropriate for the "contagion" variables because it allows annual updating: as more of a nation's neighbors adopt, its own expected likelihood of adoption increases accordingly.

Independent variables. The variables and sources are described in the Appendix. Exports to the US is coded as 1 if the US is the destination of 10% or more of a nation's exports in a given year, 0 otherwise. Foreign capital penetration is the proportion of a nation's fixed capital owned by foreign companies, as of 1980. IMF aid is the net disbursement of loans and credits at a concessional interest rate by the IMF (via its Enhanced Structural Adjustment Loan facility) as a percentage of the nation's GNP. Independence is measured as a dummy variable coded 0 if a nation was independent prior to 1980 and 1 if it became independent during the sample period. (Newly independent nations consist largely, but not entirely, of former Soviet bloc nations.) Because we had little strong theory to guide us, we measured creation of stock exchanges by geographically proximate nations in several ways. Geographic proximity was measured by shared land or sea borders or, alternatively, by being located in the same region, as coded by the World Bank (e.g., Sub-Saharan Africa, Southeast Asia, Central America and Caribbean). Timing was measured as adoption in the previous year (e.g., how many nations in the region adopted a stock exchange in the previous years), previous three years, or ever (e.g., how many nations in the region had a stock exchange in place as of the previous year). We created a trade "network" based on annual input-output matrices of imports and exports among the nations of the world. Adoption by trade partners was coded as the number of countries that buy 10% or more of a nation's exports that adopted a stock exchange the previous year, three years, or that had a stock exchange in place as of the previous year. Common law was coded as 1 if a nation's company law or commercial code was derived from the English common law tradition, 0 otherwise. Protestantism was coded as 1 if 40% or more of a nation's population was Protestant in 1980 (or the earliest year after 1980 for which data were available), 0 otherwise. Using the raw percentage of the population that was Protestant had no impact on the results. "Former UK colony" was coded as 1 if the nation was formerly part of the British colonial empire (or, if it had several colonizers, if the UK was the most recent), 0 otherwise, and similarly for "former French colony." Finally, "recent transition to democracy" was coded as 1 if the nation had converted to a democratic political system in the previous three years, 0 otherwise. The coding categories include communist, dictatorship/single-party system, monarchy, and parliamentary/presidential democracy.

We also controlled for three factors likely to influence the adoption of stock exchanges. First, the absolute size of a national economy influences the value of having a stock exchange. In general, the larger the economy, the greater the number of businesses and thus the greater the incentive to create mechanisms for raising capital. We measure size of economy as the natural logarithm of GNP. Second, the size of the economy relative to the population is also likely to be influential. The greater the average income, the greater the prospects for domestic savings that can be channeled to domestic businesses. We include in our models GNP per capita. Third, the general attractiveness of a nation to foreign investors will influence the likelihood that a stock exchange will be effective at attracting foreign capital. We include a measure of net foreign direct investment divided by GNP. Each of these measures is annually updated for 1980-1997 inclusive.

Data are organized by nation-year from the beginning of the sample period through 1998. Nations can therefore have up to 18 years of data (for those without stock exchanges that were independent in 1980 and did not create an exchange by the end of 1998). Nations are deleted from the risk set after they adopt, while new nations are added to the risk set at the time of independence. Table 2 shows the number of available nation-years for each variable and region.

Table 2 about here

The correlations shown in table 2 are generally moderate. As expected, British colonial history correlates strongly but not perfectly with common law tradition (r=0.72), and our measure of Protestantism (r=0.27). Nations subject to British colonial influence but without a common law system include, for example, Myanmar (former Burma), Malta and Afghanistan. The correlations also suggest that countries with a French colonial history have bigger economies (measured as GNP) than British colonies, but that their per capita income is lower. This pattern is mirrored in the correlates of colonial influence, legal and religious tradition. These relationships may be influenced by the definition of the risk set. Of the nations without stock markets in 1980, former British territories include many small countries in Oceania and the Caribbean, while former French colonies are more concentrated in Africa and Indochina.

The correlation matrix also suggests that larger countries trade with more other nations, and that the choice of trade partners is affected by a country's geographic location. Integration into global trade flows (number of export destinations) correlates positively with the size of an economy (r=0.60) and to a lesser extent with the country's GNP per capita. Our other measure based on trade flows, export dependence on the US, correlates positively with nations' location on the American continent (Central and South America, Caribbean).

Because we use annual spells in our model, countries that enter the risk set late or exit early contribute fewer observations to the correlations shown in the table. This does not, however, reflect their weight in the subsequent event history analysis.

RESULTS

Table 3 presents the findings of our event history analyses. Because the data requirements for the models are extensive, we present the models for each set of predictions separately, while the final model presented includes all the hypothesized predictors except foreign capital penetration (which was available for less than half our sample). The first model includes only the control variables. As expected, the size of the economy, GNP per capita, and the level of foreign direct investment (FDI) each significantly increased the propensity to create stock exchanges. Models 2-3 reveal mixed support for the dependency perspective—nations that received IMF structural adjustment loans were more likely to create stock exchanges subsequently than similar nations that did not receive IMF aid (H3). However, exports to the US (H1) had a marginal effect in the opposite direction than hypothesized, while foreign capital penetration (H2) had no significant positive effect on the creation of stock exchanges. We find modest evidence consistent with the world society account in models 4-5. Neither recent independence (H4) nor trade proximity to prior adopters (H6) had a discernable effect, regardless of the lag structure. But while adoption by immediately contiguous neighbors had no discernable effect (see Model 4), we did find that creation of stock exchanges by nations in the same region did have a significant effect, consistent with H5. The estimated effect indicates that the creation of an exchange by a nation in the same region as the focal country increases the focal country's rate of adoption by 18% over the next three years.

Table 3 about here

Model 6 indicates that, contrary to expectations generated by the "national institutions" view, neither common law, Protestantism, nor a history of British colonization (H7-H9) influenced the propensity to create a stock exchange. We do, however, find a strong *negative* effect for a history of French colonization. Exponentiating the coefficient gives the multiplier effect that a one-unit difference in the variable has on the expected rate of adoption. Thus, exp[-2.352] = .095, implying that former French colonies created stock exchanges at a rate roughly 90% lower than otherwise comparable nations. The effect is not due to collinearity or obvious omitted variables. (Including an indicator for sub-Saharan Africa, for example, does not influence the estimated effect.) The lack of effect for a common law tradition is equally not due to collinearity—excluding the indicator for "former UK colony" has no impact. Thus, both the negative effect of French colonization and the null effect of common law are robust to model specification.

Model 7 evidences support for Hypothesis 10: transition to democracy increased the estimated rate of stock exchange creation by 134% (exp[.85] = 2.34) during the subsequent three years. The temporal ordering implied by the model is appropriate: out of 26 transitions to democracy in the sample, there were eight cases in which the creation of a stock exchange happened within a year of transition and 13 cases in which a stock exchange followed a transition to democracy by more than one year. There were only five instances in which a transition to democracy followed the creation of an exchange, namely Ghana, Panama, Russia, the Ukraine, and Yugoslavia. With the exception of Ghana, which had had a democratic system previously, the formal transition to an election-based multipartite system followed within two years of creating the stock market. We do not believe that these political transitions can plausibly be attributed to such a recent change in economic institutions.

Model 8 investigates whether a more general centrality in the system of world trade influenced exchange adoption by including simple counts of the number of countries a nation exported to during any given year, indicating a modest impact of “trade centrality” on stock market creation. Finally, Model 9 includes all hypothesized independent and control variables except foreign capital penetration (for which we had only limited data). This model indicates that that the general pattern of reported results is fairly robust. Of course, it is wise to be cautious in interpreting a model with 13 predictors for 37 outcomes.

DISCUSSION

The results of our analyses provide partial support for both the neo-institutional account and the “local elite” account, but little support for the dependency view or the national institutions view. Dependency theory sees economic policy in developing economies following the agenda of the core in maintaining unequal exchange. The greater the dependence of a nation on financial and trade flows with the core, the more likely it is to follow the policy dictates of the core. Foreign capital penetration had no discernable effect on exchange adoption, and while annual flows of FDI were positively associated with creating exchanges, attributing this effect to the hegemony of the core is not particularly parsimonious. It indicates, rather, that long-term investment interest (as indicated by FDI) accompanies short-term investment interest (cf. Levine and Zervos, 1998). The effect of special IMF loans is statistically significant but substantively modest: receiving aid equivalent to 1% of GNP increases the adoption rate by 25%, but only eight countries ever receive aid of this magnitude during the sample period, most for just one year. (Most of the variation in this measure, moreover, is attributable to Zambia, which received the largest influx of IMF aid in the sample during the year prior to opening its exchange.) The image of the IMF using its financial power for molding the institutional architecture of other nations to resemble the US is not justified by the evidence presented here. Moreover, trade with the US had, if anything, a *negative* effect on exchange adoption.

The general prediction of the neo-institutional account is that national institutions are shaped by proximity to models. We find modest support for this expectation: there was some evidence of contagion within regions, but no evidence of diffusion among nations that were geographically contiguous or that had substantial trade relations. Moreover, and somewhat surprisingly, we did not find that "new" (or newly-independent) nations were more likely to create exchanges. Of 30 newly-independent nations appearing in the sample, 14 created exchanges. Most former Soviet republics did not create exchanges, whereas most East European nations not formally part of the USSR did. And outside of this region, only one of the nine newly-independent nations created an exchange—Namibia. Thus, while we find some evidence of "contagion," we do not find that stock exchanges are now part of the standard package of national institutions described by Meyer, et al. (1997).

The presence of diffusion at the regional level and its absence at the dyadic level between neighbors or trade partners calls for a closer look at the patterns by which stock markets were created in different regions. If the *associational* processes implied by new institutional theory are in fact at the heart of the observed diffusion, variations in the perceived or ascribed similarity of countries within a region should translate into corresponding variations in diffusion patterns.

Some evidence in our data supports this conjecture. The diffusion of stock market in Eastern Europe was rapid and sweeping: between 1989 and 1995, 15 countries created exchanges, 9 between 1990 and 1993 alone. All Eastern European countries had previously been part of the Soviet system, experienced similar political transitions, had an existing industrial infrastructure, and were often referred to as a group of “transition economies”. This relative homogeneity as a regional group made events in any of these countries salient and relevant to others, speeding up diffusion within the region. By contrast, diffusion in Sub-Saharan Africa moved more slowly. Between 1989 and 1997, 8 exchanges were created, five of which in the immediate vicinity of South Africa (Swaziland, Namibia, Botswana, Malawi, Zambia). These five exchanges were the only ones created between 1990 and 1996 and suggest a more localized diffusion process than in Eastern Europe. It should also be noted that countries in the proximity of South Africa only started creating exchanges as the apartheid regime started to be dismantled in 1990. It is tempting to suggest that this political change increased the perceived similarity between South Africa and its neighboring countries and allowed the diffusion of institutional templates in this sub-region. Yet, the ethno-linguistic and historical fragmentation of the larger region may have led to less attributed similarity between the situation in southern Africa and more distant countries, thereby preventing diffusion to more distant countries in Africa.

Although these within-region adoption patterns appear consistent with the legitimacy driven processes assumed by institutional theorists, two alternative explanations are conceivable: First, rather than creating exchanges in a bid for legitimacy in the eyes of proximate others, countries within regions created exchanges to *compete* with the original adaptor(s), e.g. for foreign investment capital. This account presents an alternative motivation, namely competition, and suggests that creating a stock market may be more than a symbolic act designed to gain legitimacy or prestige. In the absence of fine grained data about the motivations of relevant actors, it is difficult to verify or dismiss this alternative explanation. However, even in the absence of symbolism, the framing of the competitive challenge (another country's stock market attracts foreign investment) and the chosen response (creating an indigenous stock market rather than functional alternatives) presuppose a fundamental and perhaps internalized belief in the superiority of market based financial systems that is consistent with institutional arguments.

A second alternative to explain the observed pattern is that all countries in a region were similarly exposed to the same external influences, e.g. the sales efforts of private sector consultants and manufacturers of exchange equipment. This version suggests an alternative process, diffusion into instead of diffusion within a region. For example, some Eastern European exchanges use trading systems developed in European Union countries. It is quite likely that the makers of exchange systems focused their efforts on this region rather than African countries, which would explain the different diffusion patterns in these regions. Although this account draws attention to an alternative diffusion channel, it does not challenge the fundamental mechanism of institutional arguments, which is exposure to templates and models.

The master hypothesis of the national institutions framework is that the legal tradition behind a nation's commercial/corporate law is the decisive factor for the development of financial markets. Although the literature documenting the effect of legal tradition on the vibrancy of financial markets has rapidly become vast, we find no evidence for it here. The null effect is rather surprising, but it cannot easily be attributed to mis-measurement (we used data on legal origin published in La Porta, et al., 1999) or model specification: *no* model specification discerns any effect of English common law on the creation of exchanges, and indeed only 14 of the 42 nations creating exchanges after 1980 had such law. Perhaps this effect is due to left-censoring: many English colonies inherited stock exchanges after decolonization, and thus do not appear in the sample. But the fact remains that of the 46 nations with an English legal tradition but no stock exchange in 1980, only 30% created an exchange in the subsequent 20 years. Put another way: of 66 nations with an English legal tradition, only 34 (roughly half) had a stock exchange by 1999. This suggests that prior research on the impact of legal tradition on financial markets needs to be significantly qualified by the fact that roughly half of all nations, including half of all nations with an English legal tradition, do not have a stock market at all—a non-trivial issue of sample selection bias.

The most intriguing finding is that former French colonies were vastly less likely to create stock exchanges than other nations. The effect is quite substantial; indeed, of all former French colonies—which includes nations in northern and southern Africa, southeast Asia, the Middle East, and the Caribbean—only *one* (Lebanon) created a stock exchange between 1980 and 1998 (and Lebanon had previously had an exchange earlier in the century—see Goetzmann and Jorion, 1999, for a list of defunct markets that re-emerged). It is as if French colonial history were an inoculation against stock markets.[2] In contrast, many former British colonies that had stock markets created them long before 1980; indeed, many venerable stock exchanges in developing economies date back to their creation by British expatriates.

If the effect of colonial history is not due to the legacy of the legal system or religion, as we found, alternative mechanisms should receive more attention in explaining international variations in the institutional frameworks of financial systems. For example, there may be systematic differences in the degree to which settlers from France and the UK stayed after independence of the territory, their level of economic and political participation, and the type of links they maintained to the metropolitan countries. The descendants of colonial elites are likely to emulate business practices from metropolitan countries, with French business people creating private companies rather than seeking public listings (cf. Dobbin, 1994). Different colonial practices may also have structured the economic relations between dependent territories and metropolitan countries in distinct ways. The more centralized rule of the French colonial empire may have required less replication of institutional structures at the local level, with flows of exchange channeled though the metropolitan country. British colonial governance was arguably more decentralized and fostered the creation of more developed local arrangements such as a financial infrastructure. Such original socio-economic differences, may have set institutional trajectories independently of and in addition to legal traditions.

Perhaps more significant is the finding that stock markets rarely precede a transition to democracy during our sample period. While there has been much policy rhetoric around the notion that markets have a democratizing influence, or that market institutions provide leverage for democratic change, we find scant evidence for it here; rather, it is the transition to democracy that paves the way for markets, not the other way around. This finding is quite consistent with the "national elites" account and suggests that significant change in a nation's economic institutions often follow broader socio-political change. The link between financial globalization and democracy is of substantial policy interest (see, e.g., the collection edited by Armijo, 1999), but evidence to date has been limited. Although our results do not suggest that markets are bad for democracy, neither do they indicate that financial markets plant seeds of democracy, as some have suggested (e.g., Milken, 1999).

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[2] Vietnam opened its long-awaited stock exchange on July 28, 2000, with two listed stocks. The exchange is to be open two hours per day, with a ceiling on prices. Trades totaled $5000 the first day (Wall Street Journal Online, 7/29/2000).

In summary, the results suggest two broad themes. First, the creation of stock exchanges is usefully seen as part of a broader process of globalization. Nations were more likely to create stock exchanges when their economies had been the object of substantial investment by foreign multinationals and when they were centrally located in trade flows (that is, they imported from and/or exported to a large number of other nations). And there was modest evidence of a contagion process within regions, where nations created exchanges to the extent that their neighbors had done so. Thus, more extensive contact with the world economy increased the chances that a nation would create an exchange and hence, that local companies can become exposed to market based governance mechanisms.

Second, internal economic, political, and cultural factors also play a part in the creation of exchanges. Larger economies with greater prospects for domestic savings were more prone to creating an exchange, and nations were especially likely to create an exchange in the wake of a transition to democracy. But a French colonial legacy substantially undermined the creation of exchanges. In short, neither global nor local processes alone are sufficient to explain the spread of stock exchanges during the 1980s and 1990s.

EXPLORING THE CONSEQUENCES OF FINANCIAL MARKETS

Although we have reviewed the research on the impact of capital markets on economic growth, we wanted to explore more fully the *social* impact of stock markets as an institution for governing commercial organizations and allocating capital. The assertions made against, or on behalf of, financial markets are often extravagant: they increase economic inequality *or* create opportunities for advancement for the disenfranchised; they create a constituency for political democracy *or* increase dependence on Washington and New York at the expense of local political autonomy; they encourage a cosmopolitan engagement with world culture *or* they drive out local traditions. Voltaire stated the benign view in his *Letters Concerning the English Nation*, where he described the London stock exchange of the 1720s as “a place more venerable than many courts of justice, where the representatives of all nations meet for the benefit of mankind. There the Jew, the Mahometan and the Christian transact together as though they all professed the same religion, and give the name of Infidel to none but bankrupts.” While the appropriate design to assess these divergent claims would be a double-blind experiment with random assignment to conditions, we have to make do with the best data available.

We considered three types of impact: on economic inequality; on human rights; and on human development, broadly construed. Our indicator of inequality is the Gini index of income (or consumption) inequality for the mid-1990s. (Sufficient data on income distributions across nations are only intermittently available and for a total of 112 countries. For most nations, our data come from 1994-1996. See the World Bank’s World Development Report 2000, Table 2.8.) Our indicator of human rights is the Purdue University Political Terror Scale (PTI), a pair of 5-point ordinal measures constructed annually based on reports from the US State Department and Amnesty International. Countries are assigned a score of 1-5 based on the following criteria:

1. Countries…under a secure rule of law, people are not imprisoned for their views, and torture is rare or exceptional…Political murders are extraordinarily rare.
2. There is a limited amount of imprisonment for nonviolent political activity. However, few are affected, torture and beatings are exceptional …Political murder is rare.
3. There is extensive political imprisonment, or a recent history of such imprisonment. Execution or other political murders and brutality may be common. Unlimited detention, with or without trial, for political views is accepted
4. The practices of Level 3 are expanded to larger numbers. Murders, disappearances, and torture are a common part of life…In spite of its generality, on this level violence affects primarily those who interest themselves in politics or ideas.
5. The violence of Level 4 has been extended to the whole population…The leaders of these societies place no limits on the means or thoroughness with which they pursue personal or ideological goals.
   (See http://www.ippu.purdue.edu/info/gsp/govern.htm)

135 nations are covered by this measure in the most recent year, 1996. However, many economically developed nations are excluded (e.g., Canada, Sweden, the UK), which should be taken into account in interpreting the results. Finally, our measure of human development is the Human Development Index (HDI) created by the United Nations Development Programme (United Nations Development Programme, 1999). This measure is intended as a broader indicator of the quality of human development than traditional economic indicators such as GNP per capita. It is a weighted compound of health (life expectancy), education (1/3 enrolment, 2/3 adult literacy) and standard of living (GDP per capita at purchasing power parity). HDI values for are available for 173 countries in 1998, the year we used in our analysis.

Simple contrasts between (a) nations that had exchanges prior to 1980, (b) those that did not have exchanges but adopted them, and (c) those that never created an exchange show that nations that adopted exchanges after 1980 had significantly lower levels of income inequality, lower levels of political terror and instability, and higher levels of human development than nations that did not adopt exchanges. Recent adopters did not differ significantly from nations that already had stock exchanges in 1980 on either the inequality or human development indices. Recent adopters did, however, have significantly lower levels of political terror.

Although these comparisons are suggestive, they are of course far from conclusive. Drawing on the vast literature on intra-national inequality, we specified a basic model for inequality and consider the additional effects of the existence or addition of a stock exchange. We used OLS regression to model income inequality and human development, and an ordered logit model for political terror. To reduce endogeneity, we used the latest year for which a dependent variable was available (multiple years for Gini, 1996 for PTI, 1998 for HDI) and lagged independent variables where appropriate. Two operationalizations explore the relationship between these outcomes and the existence of stock exchanges. First, we used a dummy variable that takes the value of 1 if the country had a stock market by the year the outcome measure was taken. Second, we contrast (a) nations that had exchanges prior to 1980, (b) those that did not have exchanges but adopted them, and (c) those that never created an exchange. We set the base of this comparison to the countries that adopted stock exchanges during our study and add binary variables for cases (a) and (c). We controlled for basic factors other than institutional endowment in our models. For income inequality, we included a quadratic term for the level of economic development (GNP per capita), corresponding to the non-linear relationship proposed by (Kuznets, 1955)[3]. As very high rates of population growth are frequently linked to social and economic problems, we added the average rate of population growth during the 10 years before the inequality measure was taken (cf. Nielsen, 1994). For human rights (PTI) and human development, we employed the same control variables[4]. In the model for human development (HDI), we also included the level of government spending on health and education as a percentage of GNP, averaged over the previous period (see appendix for variable definitions).

The results of these models are summarized in table 4. In contrast to the pairwise comparisons, none of the operationalizations of the influence of stock markets had a significant effect on income inequality or levels of human development, net of the effects of the control

[3] Kuznets' model suggests an inverted U-shaped relationship between the level of economic development and inequality (see e.g. Deininger and Squire,1997 and Chang and Ram, 2000 for recent reviews). His theory links the process of development to migration from low income, low inequality agricultural sectors of the economy to higher income, higher inequality urban ones. Adding a control for the percentage of the population in the agricultural sector does not improve the model.

[4] Easterly and Levine, 1997 and La Porta., et al., 1999 link ethno-linguistic fragmentation to the "quality of government", which is largely equivalent to the absence of "political terror". Adding this variable as a control the human rights model does, however, have no effect in our data set. For human development, GNP per capita is one of the components of the HDI, and we would therefore expect a high correlation between these variables in the model.

variables. However, countries with stock exchanges had on average higher levels of political terror (model 3). Yet, recent adopters did have significantly lower levels of political terror than either countries that had a stock market before 1980 or those did not create one by 1998 (model 4).

Table 4 about here

The results are provocative, albeit far from conclusive. It would be reckless to conclude that creating stock exchanges enhances state respect for human rights in the short run, while having a stock market erodes this gain in the long term. If anything, one could speculate that the act of creating an exchange in the 1980s and 1990s coincided with and can perhaps be seen as the expression of political order in the countries that adopted. At the minimum, we may cautiously rule out that exchanges are associated with greater inequality or decreased human development. The causal paths are, needless to say, complex.[5]

CONCLUSION

This paper examined the processes leading to the creation of stock exchanges by nations that did not have them in 1980, an outcome that is directly linked to the global availability of particular corporate governance models for commercial organizations. We contrasted four accounts for the creation of exchanges, focusing on unequal power relations between core and periphery, processes of institutional contagion among nations through proximity, initial

[5] We also investigated whether the size of the market matters. We specified equivalent models to the ones reported in table 4 for the subset of countries with stock markets, using the number of companies listed and the market capitalization as a percentage of GDP as predictors (both variables were logged, all control variables remained). The results of these models matched the patterns found for the dummy variable. The size of the market had no effect on inequality and human development, and a positive effect on political terror.

institutional endowments, and political relations *within* nations. The four accounts differ along two dimensions in where they locate primary agency for institutional changes (in inter- vs. intra-national processes) and in the relative importance accorded to power processes.

The results suggest a pair of overriding themes. First, the creation of stock exchanges is linked to the process of globalization by prior trade and investment flows. Economies that have been more open to direct investment by foreign multinationals and are more central in the network of world trade are also more prone to creating stock exchanges. But this is also contingent on local conditions. A transition to democracy is often accompanied by the creation of an exchange and an economy's ability to avail itself of financial markets is also shaped by its colonial legacy. Our data are too crude to tell what it is about French colonialism that undermines stock markets—whether it is the quality of the educational and administrative infrastructure left behind or a more diffuse style of economic governance (cf. Dobbin, 1994) — but we can rule out legal tradition, the most plausible contender (see La Porta and Lopez-de-Silanes, 1998). The findings as a whole indicate that institutional diffusion takes place at both the international and the local level.

Enthusiasm around the role of financial markets has defined the American view of globalization. Daniel Yergin recently stated, "This global equity culture is redefining capitalism and the New Economy in every corner of the planet," while Bradley, et al. (1999) argue that "The Anglo-American governance system … notwithstanding its idiosyncratic historical origins and its limitations, it is clearly emerging as the world's standard." Our findings suggest that these assessments are at best premature: nearly half the world's nations do not even have stock exchanges, and there are significant institutional roadblocks to adoption. Moreover, many of the exchanges in place appear to be more symbolic than economically substantive: an exchange that trades in two stocks for two hours per day (as in Swaziland or Vietnam) is unlikely either to turbocharge the economy or to create an obedient satellite of the Wall Street/Washington nexus. But the results do indicate some intriguing regularities, and we hope in further work to unpack both the causes and the consequences of institutional adoption further.

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FIGURE 1: DIFFUSION OF STOCK EXCHANGES

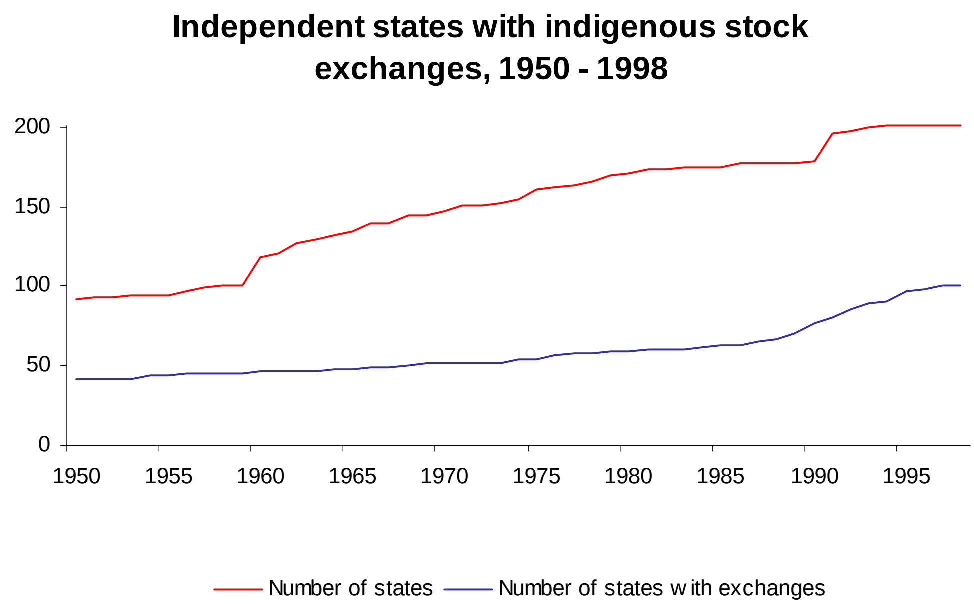

FIGURE 2: PORFTOLIO INVESTMENTS TO LOW- AND LOWER MIDDLE-INCOME COUNTRIES (FROM WORLD BANK, 1999)

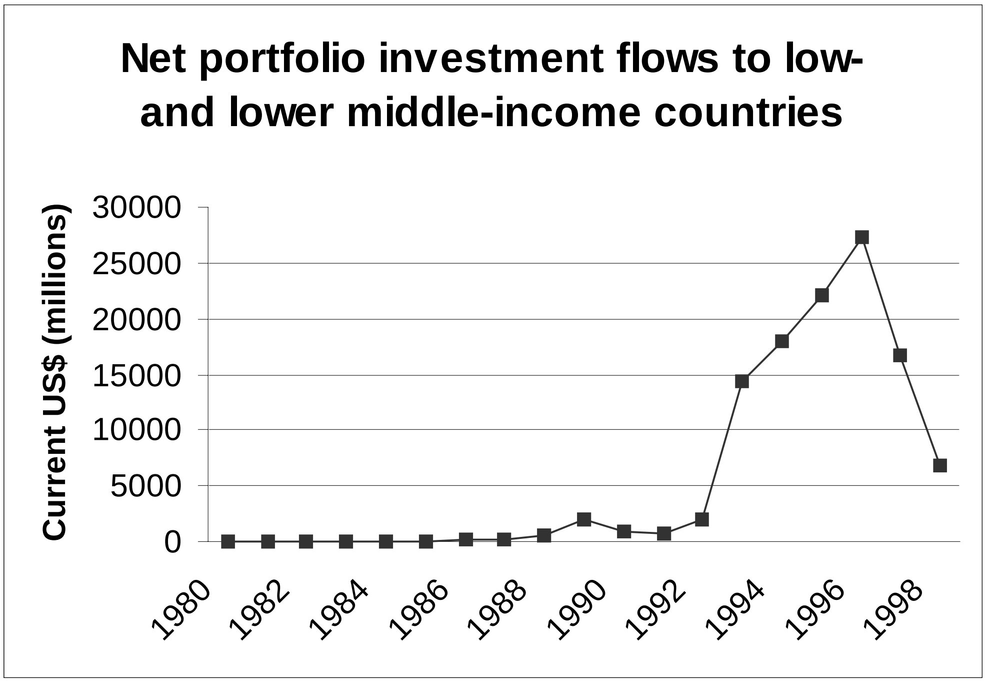

TABLE 1: NATIONS CREATING EXCHANGES, BY YEAR

1981	Trinidad/Tobago	1990	PR China, Honduras, Hungary, Malta, Panama, Russia, Swaziland
1982		1991	Bulgaria, Croatia, Poland, Slovakia, Mongolia
1983		1992	Czech Republic, El Salvador, Lithuania, Namibia, Ukraine
1984	Kuwait, Saudi Arabia	1993	Armenia, Cyprus, Latvia
1985	Iceland	1994	Botswana, Uzbekistan
1986		1995	Estonia, Macedonia, Malawi, Palestine, Romania, Zambia
1987	Bahrain, Barbados	1996	Lebanon
1988	Oman	1997	Kazakhstan, Uganda
1989	Ghana, Mauritius, Slovenia, Yugoslovia		

TABLE 2: BASIC STATISTICS AND PAIRWISE CORRELATIONS*

	Mean	SD	Spells	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Ln (GNP)	21.843	1.790	1563	1.000															
2 GNP / capita (k)	2.867	3.829	1553	0.131	1.000														
3 FDI / GNP	0.012	0.061	1412	-0.143	0.041	1.000													
4 US is major export market	0.291	0.454	1984	-0.013	-0.007	0.021	1.000												
5 IMF aid as % GNP	0.056	0.529	1563	-0.008	-0.056	0.006	-0.010	1.000											
6 Foreign capital penetration (PEN2)	10.440	12.999	853	-0.265	-0.008	0.133	-0.032	-0.003	1.000										
7 # bordering countries adopting in prior 3y	0.186	0.529	1984	0.011	-0.023	0.024	-0.022	-0.013	0.039	1.000									
8 # countries in region adopting in prior 3 y	0.994	1.843	1984	0.186	0.016	0.025	-0.094	0.052	0.012	0.039	1.000								
9 # of trade partners adopting in prior 3y	0.028	0.173	1984	0.042	-0.033	-0.028	-0.058	-0.004	-0.089	0.004	0.114	1.000							
10 Independence after 1980	0.094	0.292	1984	-0.075	0.061	0.073	-0.065	-0.022	-0.045	0.031	0.238	0.108	1.000						
11 Former UK colony	0.358	0.480	1984	-0.370	0.229	0.077	0.018	0.026	0.123	0.041	-0.123	-0.029	-0.013	1.000					
12 Former French colony	0.208	0.406	1984	0.199	-0.194	-0.082	0.048	-0.004	0.223	0.022	-0.044	-0.039	-0.165	-0.383	1.000				
13 Predominantly protestant	0.126	0.332	1984	-0.425	0.079	0.091	0.037	-0.044	0.082	0.004	-0.113	-0.035	0.211	0.274	-0.127	1.000			
14 Common law tradition	0.353	0.478	1984	-0.423	0.072	0.062	0.069	0.032	0.026	0.011	-0.154	-0.009	0.102	0.716	-0.379	0.422	1.000		
15 Transition to democracy in prior 3y	0.129	0.335	1984	0.047	-0.076	-0.015	-0.019	0.010	-0.056	-0.016	0.241	0.043	0.268	-0.137	0.021	-0.001	-0.086	1.000	
16 # trade partners	43.639	25.053	1687	0.598	0.270	-0.006	-0.059	0.020	-0.173	-0.035	0.192	0.083	-0.044	-0.182	0.000	-0.256	-0.201	0.042	1.000

Regional Distribution of Observation Spells and Pairwise Correlations

Region	% Spells	Cties	Spells	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17 Sub-saharan Africa	30.3%	36	602	-0.062	-0.268	0.005	0.134	0.066	0.121	-0.044	0.154	-0.087	-0.137	0.012	0.196	-0.181	0.003	0.031	-0.130
18 Northern Africa	9.3%	11	185	0.125	-0.123	-0.068	-0.065	0.005	0.042	-0.018	-0.173	0.039	-0.073	-0.175	0.297	-0.122	-0.107	-0.010	-0.003
19 Middle East	10.1%	14	200	0.240	0.472	-0.028	-0.174	-0.027	-0.042	0.060	0.027	0.004	-0.027	0.158	-0.027	-0.127	-0.034	-0.114	0.131
20 Southeast Asia	6.4%	7	126	0.051	-0.136	0.012	-0.090	-0.010	0.083	0.057	-0.141	-0.042	-0.084	-0.040	0.141	0.013	0.041	-0.051	-0.085
21 Northeast Asia	3.3%	4	65	0.054	0.065	0.088	0.007	-0.021	-0.091	-0.043	-0.079	0.069	-0.059	-0.138	-0.094	-0.070	-0.136	-0.037	0.269
22 Ocenania	8.7%	11	172	-0.432	-0.027	-0.001	-0.012	-0.035	0.125	0.003	-0.166	-0.049	0.073	0.308	-0.158	0.596	0.417	-0.012	-0.296
23 Central America	3.6%	5	71	0.140	-0.029	-0.034	0.271	-0.020	-0.168	0.009	-0.052	0.016	-0.062	-0.144	-0.099	-0.073	-0.142	0.055	0.037
24 Caribbean	9.4%	12	186	-0.226	0.126	0.133	0.197	-0.041	-0.078	0.005	-0.095	0.068	0.086	0.236	-0.088	0.232	0.240	-0.036	-0.100
25 South America	1.8%	2	36	-0.104	-0.043	-0.084	0.204	0.088	.	-0.012	-0.073	-0.022	-0.044	0.040	-0.070	-0.052	0.042	0.060	-0.002
26 Western Europe, US, Canada	6.1%	6	121	-0.027	0.272	0.011	-0.136	-0.017	-0.023	-0.026	-0.052	-0.041	-0.082	-0.081	-0.131	-0.059	-0.127	-0.073	0.205
27 Eastern Europe, Russia	8.6%	18	171	0.255	0.043	-0.036	-0.193	-0.023	-0.134	0.008	0.441	0.044	0.135	-0.230	-0.158	-0.090	-0.227	0.085	0.303
28 Asian former soviet republics	2.5%	8	49	0.163	-0.021	-0.014	-0.095	0.006	.	0.018	0.016	0.106	0.495	-0.119	-0.082	-0.060	-0.118	0.200	0.008

* Correlations are based on those spells (nation-years) that constitute the observations in the risk set.

TABLE 3: EVENT HISTORY ANALYSIS OF STOCK EXCHANGE CREATION, 1980-1998

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ln (GNP)	0.515 ***	0.450 ***	0.392 **	0.481 ***	0.309 ***	0.417 ***	0.489 ***	0.462 ***	0.318 ***
	(0.091)	(0.084)	(0.173)	(0.086)	(0.101)	(0.123)	(0.096)	(0.123)	(0.118)
GNP / capita (k)	0.259 ***	0.280 ***	0.444 ***	0.238 ***	0.244 ***	0.263 ***	0.273 ***	0.248 ***	0.247 ***
	(0.055)	(0.051)	(0.061)	(0.057)	(0.056)	(0.056)	(0.057)	(0.064)	(0.057)
FDI / GNP	2.388 *	2.591 *	10.658 ***	2.143	1.557	1.556	2.406 *	2.176 *	1.463
	(1.273)	(1.364)	(2.082)	(1.425)	(1.351)	(1.495)	(1.331)	(1.169)	(1.643)
US is major export market		-0.968 *	-0.147						-0.381
		(0.513)	(0.502)						(0.496)
IMF aid as % GNP		20.640 ***	25.255 ***						17.311 ***
		(3.314)	(6.549)						(4.199)
Foreign capital penetration (PEN2)			-0.028						
			(0.023)						
# bordering countries adopting in prior 3y				-0.372					
				(0.312)					
# countries in region adopting in prior 3 y					0.299 ***				0.220 **
					(0.081)				(0.095)
# of trade partners adopting in prior 3y				-0.800	-1.120				-0.956
				(1.206)	(1.359)				(1.414)
Independence after 1980				0.550	-0.024				-0.085
				(0.418)	(0.527)				(0.510)
Former UK colony						0.047			0.111
						(0.635)			(0.631)
Former French colony						-2.459 ***			-1.964 *
						(0.953)			(1.012)
Predominantly protestant						-1.103			-0.703
						(1.003)			(0.724)
Common law tradition						-0.046			0.237
						(0.616)			(0.587)
Transition to democracy in prior 3y							0.972 ***		0.510
							(0.377)		(0.590)
# trade partners								0.010	
								(0.006)	
Spells	1434	1434	825	1434	1434	1434	1434	1434	1434
Countries	116	116	56	116	116	116	116	116	116
Events	38	38	21	38	38	38	38	38	38
log likelihood	-140.08	-135.02	-58.22	-138.46	-130.11	-132.56	-137.43	-123.74	-122.41
Wald chi2	84.59	94.89	72.46	78.59	66.66	86.57	89.24	78.92	93.81

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$ Two tailed tests.
Robust standard errors are in parentheses

Proportional hazards (“Cox”) survival model with annually-updated covariates. The dependent variable is the hazard rate of stock exchange creation by nations with no existing exchange, estimated using the date that the first exchange was opened (see Appendix for details).

TABLE 4: CONSEQUENCES OF STOCK EXCHANGES

Models of socio-political outcomes

	Dependent Variable [a)]					
	Income Inequality (Gini)		Human Rights (PTI)		Human Development (HDI)	
Independent Variable	(1)	(2)	(3)	(4)	(5)	(6)
Ln (GNP)	24.772 **	26.734 ***	4.713 ***	4.469 ***	0.459 ***	0.465 ***
	(10.311)	(9.921)	(1.579)	(0.785)	(0.057)	(0.058)
Ln (GNP)^2	-1.540 **	-1.645 ***	-0.329 ***	-0.304 ***	-0.020 ***	-0.020 ***
	(0.584)	(0.568)	(0.092)	(0.046)	(0.003)	(0.003)
10 year average population growth rate	4.586 ***	4.500 ***	0.222	0.224 *	-0.018 ***	-0.018 ***
	(1.057)	(1.210)	(0.140)	(0.126)	(0.005)	(0.005)
Government spending on health (% GNP)					0.008 **	0.008 **
					(0.004)	(0.004)
Government spending on education (% GNP)					0.003	0.003
					(0.004)	(0.004)
Nation has a stock market	0.183		0.530 **		0.009	
	(2.096)		(0.227)		(0.011)	
Had a stock market before 1980		0.697		2.032 *		-0.031
		(2.343)		(1.057)		(0.032)
Created a stock market since 1980						
Does not have a stock market		1.741		0.966 ***		0.051
		(2.554)		(0.119)		(0.052)
Observations	110	110	120	120	154	154
R squared	0.360 ***	0.363 ***			0.912 ***	0.913 ***
log likelihood			-166.46 ***	-162.57 ***		

* p < 0.1 ** p < 0.05 *** p < 0.01 Two tailed tests.

a) Robust standard errors are in parentheses, Human Rights model is specified with regional clustering for robust estimates

The models for income inequality and human development show OLS regression estimates, the model for human rights shows ordered logit estimates.

APPENDIX: VARIABLES AND SOURCES

Variable	*Definition*	*Source*
Creation of a stock exchange	The date of the formal, state recognized formation of a stock exchange (usu.the date of incorporation or charter). Informal trading without a legal framework does not count. If formation date missing, first trading day.	Handbook of world stock, derivatives and commodity exchanges 1998, International Finance Corporation (IFC)
GNP in US$ (logged)	Gross National Product at market prices in current US $	World Bank and OECD national accounts data (World Development Indicators database – WDI, 2000)
GNP per capita in US$	Gross National Product at Purchasing Power Parity divided by mid-year population; scaled to $1000 units.	World Bank and OECD national accounts data (WDI)
Net foreign direct investment (US$M) as % of GNP	Net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in a foreign economy.	International Monetary Fund and World Bank (WDI)
Concessional IMF aid as % of GNP	Net disbursements of loans and credits at a concessional rate by the IMF. The IMF provides concessional aid through the Enhanced Structural Adjustment Facility since the mid 1980s.	World Bank Global Development Finance (WDI).
Foreign capital penetration	The stock of fixed capital owned by foreign companies over the total stock of fixed capital (foreign + domestic) in 1980.	Dataset used by deSoysal & Oneal (1999). Their source: UN + OECD data
Number of neighbors with exchange	Neighbors coded as countries with a land or sea border. Lagged by 3 years.	Own coding. Stock exchanges, see above.
Number of nations in region with exchange	Nations in region coded as any nation in the "region" as defined by the World Bank (Central America and Caribbean; Southern Africa; etc.) Lagged by 3 years.	WDI for region coding. Stock exchanges, see above.
Number of major export partners with exchange	Major export partner: destination of at least 10% of a country's exports in a given year. Lagged by 3 years.	Direction of Trade data compiled by the World Bank (Trade Analysis System -World Bank; Webstract db - S&P)
US is main export partner	USA is the destination of at least 10% of a country's exports in a given year.	As above
Independence after 1980	Date of independence: declaration and subsequent recognition as an independent state.	Online member directory, UN; World Factbook 1999, CIA
Former UK colony	Was part of the British colonial empire or a British protectorate, if several colonial powers, the latest counts.	Own coding. World Factbook 1999, CIA
Former French colony	Was part of the French colonial empire or a French protectorate, if several colonial powers, the latest counts.	Own coding. World Factbook 1999, CIA

Protestant religion	Protestant is the major religious tradition. Operationalized as 40% or more of the population. Population percentages are for 1980 or earliest available for newly independent states.	La Porta et al 1999 (*JLEO*), data appendix, their sources: several, mainly UN, CIA
Common law tradition	Refers specifically to the company law or commercial code. UK tradition = English common law	La Porta et al 1999 (*JLEO*), data appendix, their sources: CIA, legal encyclopedias.
Recent transition to democracy	Conversion to a democratic political system in the last 3 years. Coding categories (annual): communist, dictatorship/ single-party system, monarchy, parliamentary / presidential democracy	Statesman's Yearbook 1980-1999, own coding
# trade partners	Number of countries reported as export destinations reported in a country's national accounts, supplemented with imports reported by other countries, if a country does not publish directions of trade	Trade Analysis System; Webstract database (World Bank, IMF), Years: 1980-1998
Population growth rate, 10 year average	Moving average of percent growth rates in the 10 years prior to the observation year.	World Bank (WDI)
Government spending on health / education	Government spending on health / education, expressed as percent of GNP, averaged over the previous 8 years or shorter depending on data availability	World Bank (WDI)
Political Terror Scale	Measure of socio-political instability and violence, based on expert ratings	Coded by Purdue University Global Studies Program (http://www.ippu.purdue.edu/info/gsp/govern.htm) from data published by US Dept. of State; Amnesty International, Year: 1996
Gini Index	Measure of inequality based on distribution of income / expenditure, World Bank / UN measures use top and bottom quintiles if more detailed data unavailable	World Development Indicators (World Bank), Year: various, 1988-1997
Human Development Index	Weighted compound of health (life-expectancy), education (1/3 enrolment, 2/3 adult literacy) and standard of living (GDP per capita at PPP) measures	United Nations Development Programme, Human Development Report 1999

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